

EDITED KSA LISTING

CLASS: SENIOR CIVIL ENGINEER

NOTE: Each position within this classification may be required to possess all or some of these knowledge, skills or abilities.

	Knowledge of:
K1	Comprehensive knowledge of principles and practices of civil engineering in order to design; write specifications; and perform construction support, design review, project management, etc.
K2	Basic knowledge of surveying to conduct field surveys.
K3	Average knowledge of engineering mathematics for accurate structural analysis and design.
K4	Comprehensive knowledge of the strength, properties, and use of construction materials in building, structural design, choice of materials, and cathodic protection.
K5	Average knowledge of engineering economics to perform value engineering.
K6	Comprehensive knowledge of procedure and terminology for designing; writing specifications; and performing construction support, design review, project management, etc.
K7	Comprehensive knowledge of quality control in order to complete inspections, submittal reviews, shop drawing reviews, etc.
K8	Average knowledge of research methods to consult with the institution, write reports, perform value engineering, and conduct specialized technical studies.
K9	Average knowledge of materials testing for review testing reports and construction inspection.
K10	Comprehensive knowledge of building codes to design, review others' designs, provide construction support, etc.
	Skill to:
S1	Skill in design to produce preliminary plans and working drawings, and perform construction support, design review, and value engineering on a wide variety of civil and structural-related projects.
S2	Skill in analyzing and interpreting data to produce technical reports and recommendations on a wide variety of civil and structural engineering issues.
S3	Skill to evaluate written technical reports to formulate current and long-range solutions, and strategies of a specialized or technical nature.
S4	Skill in assessing workload to establish priorities.

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S5	Skill in the use of a variety of drafting equipment, survey equipment, and computers (e.g., AUTOCAD, structural analysis software, Microsoft Office) to produce plans, specifications, reports, etc. on a wide variety of civil and structural-related projects.
S6	Skill in orally and graphically communicating project requirements to other members of the work unit to produce plans, specifications, and reports on a wide variety of civil and structural-related projects.
S7	Skill in construction support (e.g., interpreting plans and specifications for the contractor, reviewing shop drawings and submittals) and inspection to ensure that construction work conforms to plans, specifications, and building codes on a wide variety of projects.
S8	Skill in design review to ensure that designs produced by other entities comply with building codes, departmental design criteria guidelines (DCG), and Capital Outlay Budget Change Proposals (COBCP), and to determine constructability/feasibility of the designs on a wide variety of projects.

	Ability to:
A1	Ability to prepare detailed plans and specifications to be used in the course of construction work.
A2	Ability to train others in the design and preparation of drawings, specifications, estimates, construction inspections, and field surveys to be used in the course of design and construction work.
A3	Ability to prepare complete and comprehensive reports, including economic analyses, and make recommendations in order to provide complete and detailed information for top managers to make decisions.
A4	Ability to analyze situations accurately and make independent engineering judgments to provide information, take effective action, and resolve physical plant problems and construction support issues.
A5	Ability to perform and understand mathematical computations applicable to engineering, surveying, and design operations in order to provide plans, specifications, and reports.
A6	Ability to interpret and utilize civil and structural engineering plans and specifications in order to provide design review, construction support, technical reports, etc.
A7	Ability to establish and maintain effective working relationships with associates, subordinates, consultants, contractors, contractors' employees, and local authorities in order to facilitate good relations between the department and outside entities.

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A8	Ability to traverse rough terrain in all kinds of weather in order to conduct construction inspections and preliminary site investigations at institutions.
A9	Ability to access rooftops, crawl spaces, and constricted areas in order to conduct construction inspections and preliminary site investigations at institutions.